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GENERAL SOFTENING OF THE BRAIN SELDOM SEEN AS A PATHOLOGICAL CONDITION, NEVER AS A CLINICAL DISEASE.

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It may be said by some, and has been said, that such an announcement is unnecessary; that it is perfectly well understood that softening of the brain is always partial, limited to a certain portion or to certain portions of the organ.

To show that correct views in regard to this do *not* prevail, we will state that for many years it has been necessary to teach students that there is no such disease as general softening of the brain, their language showing that they had somewhere acquired a belief not only in the reality of such a disease, but also in their capacity to diagnosticate it.

We constantly hear that a certain person is threatened with, or has, softening of the brain, and the term is used in such a way by physicians, as well as by the public, as to imply that there is general softening. To show how common is the belief in such a disease, and in symptoms indicating it, I will quote the answers of a number of physicians in charge of insane asylums, whose experience of the prevalence of such a belief was asked. One says, "I should judge that two thirds of the cases of chronic disease of the mind were considered by physicians as instances of softening." Another writes, "I do most confidently state that I have often heard physicians speak of 'softening of the brain' in a manner that conveyed to my mind the impression that they referred to a softening of the whole mass of the brain, and not to the local softening." A third says, "I have *very, very frequently* heard the term 'softening of the brain' used by physicians as expressing a general softening of that organ." A fourth writes, "In common language, dementia is known as 'softening of the brain.' Persons who are losing their faculties from whatever cause are spoken of as having 'softening of the brain.' Persons in deep melancholia, who cannot be interested in anything outside of their deep and silent miseries, are in common language said to have 'softening of the brain,' when this is not the pathological change."

Dr. Tanner says,[1] "The general symptoms of *cerebral softening* are more or less severe and persistent pain in the head, attacks of vertigo, coming on suddenly and soon passing off; a diminution of intellectual power, embarrassment in answering questions, depression of spirits, and a tendency to shed tears on any excitement; prickings and twitchings in the limbs, sometimes pain and sometimes numbness; a tendency to sleep, especially after meals, and more or less impairment of vision and hearing." Still farther on we are told that "the ramollissement is usually partial," which implies that it may be general. Without asserting that the intention of the writer was to describe a general softening, the symptoms detailed are of such a character that they certainly do not indicate a partial softening, which is afterwards suggested by other symptoms, but the description of this last is so blended with, and follows so immediately the above that the student must acquire a confused idea of the clinical history of what he has so often heard called softening of the brain.

J. Russell Reynolds and H. Charlton Bastian say,[2] "Softening of the brain is a disease characterized during life by impairment of mind, sensibility, and motility, and after death by diminished consistence and degeneration of the cerebral substance. The disease now to be described is that which has been known as a white or non-inflammatory softening; ramollissement blanc or ramollissement non-inflammatoire. Causes. There is little that is satisfactory which can be said with regard to the remote ætiology of softening of the brain. Among the conditions which predispose to its occurrence the most important is age, or agedness. Softening of the brain is essentially a manifestation of decay, and this may be either the natural result of the wear and tear of a life's work, or it may be the early outcome of excessive strain. The real cause is that waste of tissue which is unbalanced by repair, and this may come from the long continuance of work — old age — or the unhealthy severity of work and its undue relation to rest. The proximate causes may be resolved, as it will appear in the section on pathology, into morbid conditions of the vascular system. Neither sex, constitution, nor season of the year has been shown to exert any marked predisposing influence, nor has any distinct relation been made out between any one particular condition of the heart and cerebral softening. Degeneration of the kidneys and impaired nutrition of the heart and vessels are among the conditions which frequently accompany ramollissement; but these ought to be regarded as certain parts of a general change, of which the cerebral softening is but another counterpart, rather than as predisposing causes of its existence."

The authors of the above are so well acquainted with nervous disor-

[1] Practice of Medicine, 1866.

[2] Reynolds's System of Medicine, ii. 446.

ders as to make it probable that, not bearing in mind the views of those less skilled than themselves, they did not appreciate the weight and meaning of these words for the believers in general softening.

With such a general belief in the reality of the disease and such statements as are quoted, the difficulty has been to prove the negation. We will first offer evidence on the pathological side of the question.

Foerster says,[1] "Independently of the hydrocephalic softening and that diminution of the consistence of the whole brain, found as a post-mortem change, softening of the brain involves only larger or smaller portions of the same."

As a matter of indirect clinical evidence it is significant that such authors as Hasse, Trousseau, and Jaccoud in no way allude to *general* softening, while they describe very accurately the *partial*. But Dr. J. Hughlings Jackson, in a lecture on softening of the brain,[2] has stated clearly what the disease is *not* and what it *is*. He says, "We very frequently hear the expression 'softening of the brain.' It is often used by educated patients; for many people who simply suffer slight but often temporary nervous exhaustion think, always erroneously, that they have 'softening' or are going to have it. It is really an expression of pathological application, but, just as the symptomatic word apoplexy has come to have a pathological meaning (effusion of blood), so the pathological term 'softening' has come — so at least it appears to me — to be used, even by some medical men, as a name for a certain rude clinical grouping of symptoms in cases in which there really is no softening. This use of the term is to be deprecated. Let me mention the symptoms of cases wrongly called 'cases of softening.'

"We see patients who have become excitable, irritable in temper, and desponding; they have found that their attention easily fails, and that they cannot do their accustomed work; they usually sleep badly; they often have what they call headache, but it is mostly not an ordinary headache, either in kind or position; it is a feeling of pressure or sometimes of burning, and its seat is the vertex or back of the head; there is very often, indeed, a disagreeable feeling at the occiput and in the upper parts of the spine, more distressing than pain, — an intolerable physical feeling; the queer feeling in the spine is often intermittent, and frequently comes on slowly, with great depression of spirits. Altogether there is a strange mixture of 'mental' and physical symptoms.

"Recognizing the group of symptoms I have mentioned as a fair clinical entity, deserving particularly careful study, I do not see the evidence for the diagnosis that softening of the brain is the pathological change causing them. Such cases are called by the laity nervous debility, and often by medical men hypochondriasis. The symptoms, I

[1] Handbuch der speciellen pathologischen Anatomie, Leipzig, 1863, page 74.

[2] The Lancet, September 4, 1875.

think, indicate nervous exhaustion, beginning often in the sympathetic nervous system, and secondarily affecting the nutrition of the highest centres in the brain. Of course this is only hypothetical, for there is no morbid anatomy of such cases. Every one's conclusion as to their pathology must therefore be hypothetical. These symptoms are often produced by excesses, and especially by sexual excesses, and by 'fast life' generally; they are sometimes suddenly developed by fright, and may be brought on by misery or by overwork, either of the mind or of the body, especially when the work is done under responsibility. Of course they occur most often in persons who inherit a weak temperament, who bear trouble badly, who are easily excited and easily depressed. In some of the cases the patients get quite well by simple, common-sense care, and the delusion that they have softening vanishes. In the graver, prolonged, and ingravescent cases I should think there was no softening of the brain, but rather greater firmness of it; atrophy of nerve cells and fibres, with increase of connective tissue; there is some atrophy of the brain. In saying this I am not making a very strong statement. We often see considerable atrophy of the brain at post-mortem examinations on those who have died of non-cerebral disease, and whose mental condition has attracted no attention. Atrophy of the brain is normal in old people, it is often seen in middle-aged drunkards, and even in comparatively young people who have been long bedridden by wasting diseases not primarily involving the nervous centres. I mention this, as you may think the statement that there is some atrophy of the brain an extravagant conclusion as to the state of things in a man whose symptoms are those of prolonged and severe hypochondriasis or nervous debility, or whatever the right name or label is.

"Be sure there is no softening in these cases. Indeed, I do not see how the diagnosis that there is actual softening of the brain is in any case to be possibly arrived at, unless the patient has certain local paralytic symptoms, as hemiplegia, or some other symptoms implying a local cerebral lesion, such as an affection of speech; or again, unless there be signs of cerebral tumor (severe headache, urgent vomiting, and double optic neuritis), or evidence of injury to the head. For, so far as I know, cerebral softening is always local; I know nothing of general or universal softening of the brain. To be warranted in diagnosing softening you must have symptoms which point to local disease.

"I do not say that local cerebral softening cannot exist without localizing symptoms. I only say that in their absence you are not warranted in diagnosing its existence. We know that large parts of the brain may be destroyed without any marked local symptoms resulting; these parts may be destroyed by the process of softening without causing marked local symptoms. But in these cases the softening is mostly about tumors or other kinds of adventitious products. It is, however, almost an abuse

of language to speak of these as cases of softening. The softening is, I suppose, a result of encephalitis about the tumor. We shall not refer to these cases again. For all practical purposes they belong to a distinct category. The cases which deserve to be called cases of softening are cases in which there is blocking up of cerebral arteries, or, which is infinitely rarer, of cerebral veins. Of these only shall I speak."

So clear a statement from one who has had the best opportunities for observation of this class of diseases ought to carry conviction, and it is to be hoped that it will do something to prevent the further use of an unmeaning term by physicians.

Many of the erroneous views upon medical matters held by the public are probably survivals of what was once believed and taught by physicians. While we cannot now avoid teaching much which may hereafter be regarded as merely the most generally accepted error of the time, we can aid in preventing the use of terms which are proved to be false.

A CASE OF CHRONIC INVERSION OF THE UTERUS SUCCESSFULLY TREATED BY PERSISTENT MECHANICAL PRESSURE.[1]

BY GEORGE G. TARBELL, M. D.,

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Mrs. M. S. entered the Massachusetts General Hospital, July 13, 1875, with the following history. She was thirty-seven years old. She had always been healthy, though not robust. She had been married two years. Ten months ago, after a labor of forty-eight hours, she was delivered, by instruments and under ether, of her first child, living and weighing eight and one half pounds. After twenty-four hours of labor, and when she had become extremely exhausted, she was bled almost to faintness, a pint or more of blood being drawn from a vein near the flexure of the arm. When she recovered consciousness after the ether, the physician was removing the placenta, an operation which he accomplished with difficulty, giving her much pain.

Hæmorrhage was constant and very abundant for a week or two, but not so excessive, except on one occasion, as to cause alarm. The urine was drawn with a catheter for ten days. On the third day after delivery, while attempting to raise herself in bed, she discovered that the "womb came outside the vagina and bled profusely." The physician, being sent for, replaced it within the vagina, made an ineffectual attempt to re-invert it, and in the course of the next week or two made several other futile efforts, with and without the aid of ether. During the

[1] Reported to the Boston Society for Medical Improvement, December 13, 1875.

fourth and fifth months after delivery, again, five separate attempts were made under ether to reduce it, but in vain. What method was pursued in these efforts I have no means of knowing.

At the time of admission to the hospital, ten months after her delivery, the patient was blanched and exhausted to the last degree by the hæmorrhage, which had continued at frequent intervals, and which had been excessive during the first week of each of the previous three months, — the supposed menstrual period. Examination disclosed a pyriform tumor within the vagina, which a further careful examination demonstrated to be the uterus completely inverted; its size was that of a woman's fist. Its surface was ragged and ulcerated, and bled freely upon touch. Its body was firm and hard, and the neck was narrowly contracted.

The patient being etherized, attempts at reduction were made by Dr. Minot and myself, in the following manner. A hand was introduced within the vagina, grasping the whole uterus, kneading it with the fingers to render it more pliable, and pushing it upward against the other hand and the abdominal walls pressed firmly downward just above the pubes. Relieving each other, and using all the force we deemed safe, we persisted in unremitting efforts for two hours, but to no purpose. The body of the uterus was softer and more pliable as a result of our efforts, but the os was unyielding, and we had gained nothing towards the reduction of the inversion.

An india-rubber air-pessary was then introduced into the vagina and inflated. On the fifth day afterward the bag was removed, but no change was found in the condition of the parts. The patient was again etherized, and three longitudinal incisions were made, one in front and one on each side of the os and cervix, to the depth of about one third of an inch. Dr. Minot and I then repeated our attempts at re-inversion, but without avail, and we abandoned that method.

I then procured a flexible rubber cup, of about the size of a half lemon, and with a straight and inflexible stem eight inches long. The cup was applied to the inverted fundus, and the end of the stem, projecting some distance from the vagina, was attached by straps, one over the pubes and one over the sacrum, to a belt fastened around the waist. The crest of the ilium of course kept this belt from being dragged downward; and by buckling the two straps tighter or more loosely we could easily regulate the direction and amount of the force applied. Both straps were buckled tightly, and the patient was kept upon her back in bed. On the second day she had a chill with subsequent fever (temperature 102°), and some tenderness of the abdomen. Whether this was was due to the pessary, or to the previous attempts at reduction, I cannot say, but the pessary was removed, and in four or five days these symptoms subsided.

The pessary — *i. e.*, the cup with the stem — was now reinserted, and the straps tightened so as to produce constant firm pressure upward against the whole fundus. On the third day the os seemed to have yielded so as to allow a small portion of the cervix to resume its normal position. On the seventh day the uterus was reinverted one half, so that the fundus was at a level with the os. The cup was then cut off, leaving only its base, a flat surface three fourths of an inch in diameter, to be applied to the fundus. On the eighth day this was found to have passed one and one half inches up within the cervix, pushing the fundus before it, and on the ninth day of the continuous pressure the inversion was completely reduced, the sound passing three inches above the os.

During the treatment there was a profuse fœtid and purulent discharge from the uterine surface, which, in the exhausted condition of the woman, might easily have proved the origin of septic poisoning, had it not been for the abundant vaginal douches of tepid water frequently given by the skillful nurse in such a manner as not to disturb the apparatus.

I examined the woman again a few days ago, three and a half months after the treatment. She was rapidly recovering from the extreme anæmia, and called herself quite well. She had menstruated regularly each month, though the flow of blood was but slight. The uterus was in normal position, was not painful or tender to touch, and the sound entered two and three fourths inches.

It will be seen that the constant pressure wearied out the constricting muscles of the os, that the cervix was the first part to be replaced and the fundus last, much after the manner of reducing a hernia. The inversion undoubtedly occurred at the time of delivery. Forcible taxis effected nothing, and incision of the os and cervix did not render them any more easily dilatable. The air-pessary was perhaps not long enough persisted in to say whether it would eventually have accomplished its object.

In all the cases recorded and quoted by various authors, the methods adopted in their attempts at reduction divide themselves under two heads: (1) forcible taxis, and (2) prolonged gentle pressure. By the former method many cases are undoubtedly reduced, but many come to amputation or to death as a result of the attempts at reduction.

One of the most daring, it might almost be called reckless, attempts at forcible reduction is recorded by Professor Thomas, of New York, who in 1869 treated a case by making an incision through the abdominal walls and peritoneum, inserting through this opening a dilator, made like an ordinary glove-stretcher, into the inverted os, dilating the constriction, and, with the other hand in the vagina, pushing up the uterus as the dilator was withdrawn. The reduction was accomplished with

difficulty, for the os contracted like india-rubber the instant the dilator was removed. Nevertheless the woman recovered, not only from the incised wound of the peritoneum, but also from a lacerated wound made by the fingers thrust through the vaginal wall, between the uterus and the bladder, into the peritoneal cavity, in the violence of the attempts to reduce the inversion. Professor Thomas's own account of the method would not encourage another to repeat it, except as a last resort, and as possibly preferable to amputation.

Of the milder methods, that of Dr. Tyler Smith, by sustained elastic pressure by the air or water bag within the vagina, is the one which has been most frequently employed. It is perfectly safe, and often accomplishes the desired result, especially when combined with frequent manipulation of the uterus; but in about one fourth of the recorded cases it has proved ineffectual.

The method I pursued would seem equally safe and much preferable, because the force can be so nicely regulated, and applied in the desired direction, without that great distention of the vagina and pelvis which is unbearable to many women. I have found recorded but two cases treated in this way (both of them successfully), by Dr. Robert Barnes, who fully describes the method and figures the apparatus in his recent Clinical History of the Diseases of Women. After a most complete *résumé* of all the different procedures which have been adopted, he shows conclusively, by a comparison of results, that sustained elastic or solid pressure is much safer for the woman and much surer to accomplish the reduction than forcible taxis. He clearly enunciates the principles which should always govern attempts at reduction, saying of forcible taxis and sustained pressure, "The principles of the two procedures are totally opposite. One tries to overcome resistance by sheer force rapidly applied, the other by gentle pressure long sustained. The first is replete with danger, the second absolutely safe." He also shows that, of all the methods of procuring a constant pressure, this one, of the rubber cup and stem attached outside, is the best of all, because the direction and amount of the force used can be so nicely regulated by the physician.

The recorded cases show that inversion generally occurs at the time of delivery, either in consequence of traction upon the still attached placenta, or more rarely in consequence of paralysis of the placental site. In 1847, Mr. Cross, collated four hundred cases. Three hundred and fifty occurred soon after delivery, and forty of the remaining fifty were due to polypi. It seems also to be pretty well established that spontaneous replacement of a chronic inversion rarely, if ever, takes place. There are several cases related which would go to show its possibility, but they are not established beyond a doubt. A *recent* inversion is generally easily replaced, and no doubt often spontaneously

so; but Dr. West says, "It is easier to conceive how an experienced man should commit an error of diagnosis than to understand how any effort of nature could cure a chronic inversion of the womb." The force of this remark will be seen when it is remembered that some of the most experienced gynæcologists and obstetricians have amputated or attempted to amputate the uterus, under the impression that it was a polypus.

Here in America, the favorite method of treatment has been taxis, *i. e.*, manipulations with the hands, either gentle or forcible, according to the judgment of the individual operator. A few years ago, Dr. White, of Buffalo, related to this society several cases treated by himself in this way, supplementing his hands by an instrument like the ordinary single wooden stethoscope. His results were very favorable, and occasionally remarkable, but we cannot forget the danger of producing a peritonitis, even without lacerating the vaginal or uterine walls.

RECENT PROGRESS IN MEDICAL CHEMISTRY.[1]

BY EDWARD S. WOOD, M. D.

URINARY CHEMISTRY.

Bile Pigments in the Urine. — L. Lewin[2] has had a specimen of urine to examine which contained bile pigments, and yet in which, after filtration, Gmelin's test (by nitric acid) failed to detect them. The urine was of a greenish-brown color, and when it was shaken a greenish-yellow foam was perceptible on the surface, which would lead one to suspect the presence of a considerable amount of bile pigment. The sediment was of a deep reddish-brown color, and consisted of urates. This sediment, when dissolved in warm water, gave the characteristic play of colors for bile pigments with Gmelin's test, while the filtered urine gave no such reaction. The sediment must, therefore, have carried down mechanically all of the pigment. Hence when the presence of bile pigments is suspected, and the urine contains a sediment of urates, not only the fluid but also the sediment must be tested.

Bile pigments have the property of adhering to precipitates much more powerfully than any of the other pigments, either normal or abnormal, of the urine. Hence Dr. J. F. Tarchanoff[3] recommends, in order to separate with certainty the biliary from the urinary pigments, precipitating the urine with milk of lime, freeing from an excess of lime by a current of carbonic acid gas, allowing the whole to stand a few hours, filtering, and washing the precipitate with water. The bile pigments are contained in the precipitate, while the indican, hæmoglobin,

[1] Concluded from page 15.

[2] Centralblatt für die medicinischen Wissenschaften, 1875, No. 6.

[3] Pflüger's Archiv, ix. 53.

and methæmoglobin are in the filtrate. The precipitate is then dissolved in acetic acid, and tested by Gmelin's test.

In this way the author detected biliary pigment in the urine of dogs after the injection of a hæmoglobin solution into the jugular vein, and also after the injection of water into the vein, but not to so great an extent. Naunyn and Nasse did not succeed in finding the biliary pigment in the urine under similar circumstances: Tarchanoff refers their failure to the fact that they applied Gmelin's test directly to the urine, by which small quantities can easily be overlooked.

E. Fleischl[1] recommends a modification of Gmelin's test, by which it is made much more delicate. Instead of having impure nitric acid added in such a way that it will form a separate layer at the bottom, the urine should be thoroughly mixed with pure nitric acid, or still better with a solution of the nitrate of sodium, and then concentrated sulphuric acid should be carefully added so as to form a separate layer at the bottom. The play of colors forms at the junction of the urine and the sulphuric acid. The advantage of this modification is that the pigment is not oxidized so rapidly, and therefore the color is not changed so quickly, and is not so liable to be overlooked.

Bilirubin crystals have been detected by Orth[2] in the blood and kidneys of new-born children thirty-seven times during an observation of about one and a half years in the Berlin pathological institute. These crystals were needle-shaped in the blood and rhombic tables in the kidneys. The liver frequently contained two forms of the pigment: first, the yellow amorphous deposits in the liver-cells ordinarily seen in jaundice, and secondly, reddish or brownish crystals scattered about through the whole parenchyma of the liver. He considers the cause of this formation to be icterus neonatorum, and crystallization of the pigment after death. In adults crystals are never found except after acute yellow atrophy of the liver, although the amorphous deposit is generally found after death in cases of deep jaundice.

When bilirubin is dissolved in a little alkali, and the solution is exposed to the air, one atom of oxygen is absorbed, and the reddish-brown color of the bilirubin changes to the green of biliverdin. This latter pigment has been prepared in a pure form by Maly[3] by thus exposing a solution of bilirubin in very dilute liquor sodii until the color became green, then precipitating the pigment with hydrochloric acid, washing, dissolving in hot alcohol, and re-precipitating with water. The analysis of this pure biliverdin differs from that of Staedeler by two atoms of hydrogen and one of oxygen, the formula being $C_{16}H_{18}N_2O_4$, instead of

[1] Centralblatt für die medicinischen Wissenschaften, 1875, No. 34.

[2] Centralblatt für die medicinischen Wissenschaften, 1875, No. 46; from Virchow's Archiv, lxiii. 447.

[3] Maly's Jahresbericht, 1875, page 303.

in the absorption by the former of only one atom of oxygen. This explains the change which takes place in the urine of jaundice, the color changing from a reddish brown to a green.

If this change be permitted to go still farther, two more atoms of oxygen are absorbed, and the color changes through a blue to a red, or $C_{16}H_{20}N_2O_5$, showing that the change from bilirubin to biliverdin consists in dilute solutions to a yellow. This red pigment, termed by Maly choletelin, has been examined with the spectroscope by K. Vierordt.[1] It is soluble in alcohol and dilute alkaline solutions. It is the final colored product of Gmelin's test for bilirubin. The choletelin examined by Vierordt was made by oxidizing bilirubin with nitrous acid. A layer, one centimetre thick, of a one half per cent. alcoholic solution of choletelin, placed before the slit of the spectroscope, gave a peculiar spectrum. The outer red rays of light were absorbed the least, and the outer violet rays the most, the absorption increasing steadily towards the violet end of the spectrum. There were no absorption bands, as is the case with hydrobilirubin. The absorption of the outer violet was one hundred and forty-two times stronger than that of the outer red. After an alkaline solution of biliverdin had stood fifty-six days the color changed to that of a solution of choletelin, and by spectroscopic examination it was found that it contained both biliverdin and choletelin, but that the entire amount of these corresponded to only one fifth of the biliverdin originally present, the other four fifths having been oxidized to colorless products.

TOXICOLOGY.

Detection of Arsenic. — M. Armand Gautier[2] recommends a new method for the destruction of organic matter in searching for arsenic in the animal fluids and tissues, by means of which he has certainly obtained most excellent results. His method is as follows.

About one hundred grammes of the tissues are cut up, placed in an evaporating dish, thirty grammes of concentrated nitric acid added, and the whole warmed gently. It is not necessary to divide the organs into such small fragments as when the other processes are used. The heat should be withdrawn when the mass becomes viscous and tends to attach itself to the sides of the vessel. Then add six grammes of concentrated sulphuric acid, and heat moderately till the brownish-black mass begins to adhere to the bottom of the dish. Next add, drop by drop, fifteen grammes of nitric acid, continuing the heat just to the point of vaporizing the sulphuric acid. The whole liquefies, and nitrous fumes are evolved. Continue the heat till the mass begins to carbonize, and dense fumes are given off. The black residue is then easily reduced to powder and extracted with boiling water. Filter, reduce the filtrate by

[1] Zeitschrift für Biologie, x. 399.

[2] Journal de Pharmacie et de Chimie, October and November, 1875.

boiling with the acid sulphite of sodium, and precipitate the arsenic with sulphuretted hydrogen in the ordinary way.

The advantages of this method are that no arsenic is volatilized as the terchloride, that the carbonaceous mass left upon the filter paper contains no arsenic, and that all of the arsenic originally present can be isolated and estimated.

M. Gautier estimates the amount of arsenic present by Marsh's test, and contradicts the statements made by others that all of the arsenic which is introduced into a Marsh's apparatus cannot be recovered from the arseniuretted hydrogen evolved, his experience having been the reverse of this. The sulphide of arsenic formed by the sulphuretted hydrogen is oxidized to the form of arsenic acid, which can be placed in the Marsh's flask.

Several precautions are necessary in using Marsh's apparatus for the quantitative estimation of arsenic. The method pursued by M. Gautier is to place in a flask of about two hundred cubic centimetres' capacity about twenty-five grammes of zinc and some sulphuric acid diluted with five times its volume of water. The whole is to be kept cool during the entire operation. The gas evolved is to be passed first through a drying tube, and then through a hard glass tube of two millimetres' diameter, which is surrounded for twenty or twenty-five centimetres with tinsel, and heated. After the air is expelled from the apparatus, the arsenic is dissolved in forty-five cubic centimetres of the dilute acid, to which has been added five cubic centimetres of strong acid introduced into the flask in small portions at a time. If the flask be kept cool no mirror can be obtained on a porcelain surface introduced into the ignited jet. Then twenty-five grammes more of the dilute acid with five grammes of the strong are mixed and poured into the flask little by little, and finally, a third mixture of twenty-five grammes of the dilute acid with twelve of the strong is added in the same way. After the effervescence has nearly ceased, the glass tube containing the arsenic mirror is removed and weighed. The difference between the weight of the tube alone and the tube with the mirror is the weight of the metallic arsenic in the substances examined. This operation with Marsh's apparatus requires from two and one half to three hours for its completion.

In this manner the author obtained within one tenth of a milligramme of the entire amount of arsenic introduced. In one case an amount of arsenious acid corresponding to .00379 grammes of metallic arsenic was mixed with one hundred grammes of muscle, and .00372 grammes of arsenic was recovered. In another, .00188 grammes mixed with one hundred grammes of blood gave .00178 grammes of arsenic in the tube.

A General Antidote. — J. Jeannel[1] recommends the following as an antidote which should be kept constantly prepared by druggists: —

[1] Annales d'Hygiène, April, 1875.

Persulphate of iron solution (density = 1.450)	100 parts.
Water	800 parts.
Calcined magnesia	80 parts.
Animal charcoal	40 parts.

The iron solution should be kept in a separate bottle from the mixture of the other three substances, and should be mixed with it just before using.

This mixture acts as a perfect antidote for arsenic, and is preferable to the ferric hydrate because the latter deteriorates upon keeping. It also acts as a perfect antidote for compounds of zinc and digitalin, and nearly neutralizes the action of compounds of copper. It delays considerably the action of the salts of morphia and strychnia, and to a slight extent that of the compounds of mercury. It has no effect whatever in counteracting the action of the cyanide of mercury, tartar emetic, hydrocyanic acid, phosphorus, and the caustic alkalies.

A freshly prepared mixture of the sulphide of iron, magnesia, and sulphate of sodium acts as a perfect antidote for compounds of copper, corrosive sublimate, and the cyanide of mercury.

PROCEEDINGS OF THE BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

F. B. GREENOUGH, M. D., SECRETARY.

NOVEMBER 22, 1875. *Lightning Stroke.* — DR. J. J. PUTNAM reported the case. The patient, a woman, while standing at an open window was struck by lightning, and was picked up in a closet which was at the other side of the room. She was partially unconscious, but gradually recovered; the right arm and left leg were paralyzed, but the use of the arm returned during the night, and the leg gradually regained its normal condition.

There were several burns: two deep ones were just below the false ribs on the right side; some superficial ones about three inches wide on the posterior surface of the paralyzed limbs, that on the left thigh following exactly the course of the sciatic nerve. The patient remained weak and troubled with neuralgic pains for several months. A boot was shown which she wore at the time, and which was almost torn to pieces.

In this case the peripheral nerves seem to have suffered much more than the central nervous system, although the reverse has been observed by Eulenburg. Except at the very first there were no cerebral symptoms.

DR. MINOT said that it had been stated that since lightning-rods were introduced in the British navy, not a single vessel had been damaged by lightning.

Lead-Poisoning. — DR. PUTNAM reported a case showing the great susceptibility of some persons to lead poison. The patient was at present in the Massachusetts General Hospital, quite prostrated, apparently from the effects of lead. He had had wrist-drop eighteen months ago, and the only possible source of lead was the drinking-water, which, however, had been used by many

others with impunity. Analysis had shown that this, as well as the patient's urine, contained lead, although in small amount.

Dr. Abbot knew of an instance in which the toxicological effects of lead were developed by water containing one eighth of a grain in the gallon.

Dr. Wheeler spoke of a case in which the glazing of the bottom of a tea-kettle (which contains a small amount of lead) was chipped off, producing poisoning. The patient left the house and improved; on returning, however, there was a relapse. The other members of the family were not affected.

Treatment of Perforations of the Membrana Tympani. — Dr. C. J. Blake described a method of treatment in certain cases of perforation of the membrana tympani, consisting in the application of pieces of sized paper large enough to cover the opening, and sufficiently moistened to insure their adherence to the membrane. This treatment is applicable only to those cases where there is no discharge into the tympanic cavity, or where it is so slight as to escape readily through the Eustachian tube without discharging through the perforation in the membrana tympani. The application of the paper covering possesses this advantage over the usual treatment by incision of the edges of the perforation or the touching with caustics, that it keeps up a slight irritation of the parts, favoring a cicatricial growth from the edges of the perforation and at the same time affords a protection to the new tissue. The hearing also is usually improved immediately, and in favorable cases the paper remains in position until the opening has completely closed, when it is removed by the natural process of reproduction of the dermoid coat of the membrana tympani, without the necessity for mechanical interference. Should the paper come away before the closure of the perforation is completed, it is easily reapplied, and cases in which this has occurred show a change in the shape and diminution in size of the perforation with each successive application, evidencing continued growth of cicatricial tissue. Ordinary writing-paper of varying thickness may be employed, according to the size and position of the perforation. The paper, cut a little larger than the opening in the membrana tympani, should be moistened and may then be applied by means of a pair of fine forceps or a cotton-tipped probe dipped in water. The sizing of the paper, well moistened, is sufficient to secure the proper adherence of the paper, the patient being warned not to inflate the middle ear for at least forty-eight hours after its application.

In the class of cases to which this treatment is appropriate the application of the paper as described has given most satisfactory results.

Cancer of Stomach. — Dr. Minot reported the case. The patient was a gentleman seventy years old, but appearing considerably younger, who had suffered for a year or two past with dyspepsia and hypochondriasis. Early in the spring the dyspeptic symptoms increased; there was some vomiting, which afterwards increased, so that he would frequently rise from the table and vomit what he had eaten; there were also progressive emaciation, loss of strength, and pain in various places, especially in the left shoulder, back of the neck, and pharynx. There was no marked pain in the epigastrium. After October 1st he was not able to swallow solid food, and lived chiefly upon small quantities of coffee, and milk thickened with flour. Under this diet he passed

several weeks without vomiting. No tumor could be detected until a few days before death, when a lump was felt just above the navel; this was undoubtedly an enlarged mesenteric gland. There was no constipation until during the last week of life. The pulse was of good strength, and moderate in rate, till shortly before death.

Dr. Ellis reported the result of the autopsy. There was a cancerous mass involving the whole circumference of the œsophagus at the cardiac orifice, and extending upward about an inch and a half. The tumor projected into the cavity of the stomach, in the vicinity of the cardiac orifice, in three or four distinct lobes, so that when the edges of this organ, which had been cut open, were brought together, it was evident that the cardiac orifice must have been almost entirely stopped up, the only possible manner in which even liquids could have entered being by running between these lobes, which were pressed closely together. The mucous membrane of the lower part of the œsophagus was ulcerated, but not that of the stomach. Quite a large carcinomatous nodule or aggregation of nodules was found behind the stomach, in the neighborhood of the pancreas. Carcinomatous nodules were found in the liver. The lower and posterior parts of the lungs were in a state of hypostatic hepatization.

Dr. J. B. S. Jackson said that this case was a rare one as far as the seat of the disease was concerned. He spoke of a case of Dr. James Jackson, in which the disease was also at the cardiac orifice; it was not confined, as in the present case, to that locality, but extended along the lower curvature.

Climate of Pau. — Dr. Parks gave an interesting account of his experience of the climate of Pau, and the inferences which a residence there had caused him to form with regard to its value as a resort for invalids in winter. He illustrated his remarks by diagrams on the blackboard, showing the formation of the surrounding country, to which Pau owes the peculiarities of its climate. It is situated on a spur of the Pyrenees, and is entirely sheltered from the north, south, and east winds, the only wind to which it is exposed being the west, which is never very violent, and always mild in temperature, from the fact of its having come over the Bay of Biscay. Much rain falls, but nevertheless the climate is not damp, and it is rare that during some part of a day a walk in the open air cannot be taken. The climate of Pau may be said to be the exact reverse of that of the Riviera (Mentone, Nice, etc.), as while the former is sedative, still, and moist, though not damp, the latter is stimulating, windy, and dry. And it is only from a proper appreciation of these differences that a valid opinion can be formed as to the relative advantages of the two places as a residence in any given case. The sedative character of the climate of Pau was shown in many ways; it was said that the pulse of the natives was slower, on an average, than that of the inhabitants of other parts of France, and the people are decidedly slow in their temperament.

He considered this a matter of great importance in giving advice as to a winter resort, as he regarded the special peculiarities of the climate of Pau as potent for good or evil. Those cases that require stimulating should decidedly be sent to Mentone or Nice, but where a sedative influence is wanted, Pau is very desirable. He referred to a case of a young gentleman whose circulation

was very excitable, who was sent to Mentone, he having symptoms of phthisis. While there he had repeated hæmorrhages, and finally changed to Pau; the result was that the hæmorrhages ceased entirely, and he is now comparatively well.

December 27, 1875. *Cystic Adenoma of the Thyroid; Excision; Cure.* — Dr. John Homans read the following paper and showed the specimens: —

"In reporting the following case I do not wish to be considered as recommending excision as a rule in the treatment of thyroid growths. I only wish to show three tumors coming from a case in which excision was the only possible means of cure, and in which feebleness and hoarseness of the voice, accompanied or caused by paralysis of one vocal cord, were prominent symptoms.

"Various plans of local treatment of tumors of the thyroid have been successful, namely, cauterization, excision, incision, injection, and the introduction of a seton; each case must, however, be judged on its merits and treated according to its peculiarities, or let alone.

"The literature of this disease is abundant; excellent articles have been written in Switzerland and in Germany, and the magazines of the last fifteen years in this country and in England contain accounts of many interesting cases.

"The patient from whom these growths were removed was a healthy, well-made single woman, a native of Prince Edward's Island, thirty-two years old. Her father was a white man and her mother a mulatto. She lived in her birthplace till she was twenty years old, and then came to Boston, where she has lived during the last twelve years. She first noticed the tumor in the left side of her neck eight years ago, and the one in the front of her neck five years ago. These tumors have grown slowly, without causing much pain, and only within the last two years any dyspnœa. She has not been conscious that her voice has been hoarse. Iodine was applied to the neck for a short time eight years ago, and within the last year ointments of iodine and other absorbents have been faithfully used, and internal treatment with iodide of potassium has been followed for several months, but without effect.

"The following description of the external appearances is taken from the records of the Carney Hospital, where she was admitted November 19, 1875. 'On inspection the neck seems fuller than normal, a prominent tumor is seen on the left side, extending from the region of the cricoid cartilage outwards and downwards beneath the left sterno-mastoid muscle into the posterior triangle of the neck. Another tumor is seen in the tracheal region, situated somewhat to the right of the median line, and only slightly pushing forward the skin. On palpation both these tumors are found to be solid, and to extend deeper and to be much more bulky than would appear to the sight. The extremity of neither tumor can be reached by the finger, as one extends beneath the sternum and the other beneath the clavicle. Both tumors are somewhat movable, and no connection is noticed between them. The outline of the trachea cannot be determined, and has been pushed to the right or is covered by the tracheal tumor, which rises and falls when the patient swallows.'

"I determined to remove the tracheal tumor first, and later, when the patient had entirely recovered, to remove the tumor lying beneath the sterno-mastoid, if the first operation should have been sufficiently encouraging. On November 21st, after etherization, an incision was made through the skin and muscles from the upper tracheal region to the sternum. The tumor was found to be covered with a very delicate membrane composed largely of delicately-walled veins, and the dissection was continued as much as possible with the fingers and handle of the knife, the blade being used occasionally. The tumor was sausage-shaped and somewhat lobulated, about one and three fourths inches in diameter at its thickest part, and three inches long; it was adherent to the trachea, which it had pushed considerably into the right side of the neck and had somewhat compressed; its lower extremity passed downwards behind the sternum. A nerve running over the tumor parallel to the trachea was left uninjured. Many ligatures were applied, and the deep fascial attachment was tied before the tumor was cut away. Examination of the tumor by Dr. Cutler showed it to be thyroid, and in its interior was a cretaceous mass; the newest portion of the growth was evidently the lower apex. Recovery from etherization was accompanied by great excitement and restlessness, and for several days the patient complained of pain and difficulty in swallowing; at the end of ten days, however, the ligatures had all come away, the wound was nearly healed, and the patient was up and about the ward. At the suggestion of Dr. Cutler, a laryngoscopic examination was made by him on December 10th, and the left vocal cord was seen to remain perfectly still during respiration and vocalization. Dr. Langmaid also examined the larynx, and made the following report: 'Voice low in pitch, somewhat hoarse, and quite feeble. Arytenoids changed in appearance from swelling of mucous membrane covering them. Color of vocal cords normal, or slightly redder than normal. Right cord moves freely in vocalization and respiration. Left cord remains immovable in these acts, a little withdrawn from the median line. Condition: paralysis of abductors and adductors. Probable cause: injury to recurrent laryngeal nerve from pressure of tumor removed from region of thyroid gland.'

"I regret that the interior of the larynx was not examined when the patient first entered the hospital, but I presume that the vocal cord had been paralyzed for some time. On December 15th, after the patient had fully regained her health, and had been out walking several times, the second operation was performed. An incision about three and a half inches long was made in the course of the fibres of the left sterno-mastoid, at right angles to the long diameter of the tumor and over its most prominent portion; the dissection was slow, as in the first operation. The envelopes of the tumor bled very freely when torn or cut, and were very friable. The extremity of the tumor extended beneath the outer part of the clavicle, and was gradually pulled upwards with the fingers and drawn out of the wound. All vessels that could be recognized and all vascular-looking portions of fasciæ were secured in ligatures before division. When the central attachment (resembling somewhat the central tendon of a bird's gizzard) was reached, another lobe of the tumor was revealed beneath. This also was slowly removed, and there was a feeling

of relief when the hæmorrhage, which was more free than before, was at length stopped by ligatures. For a few days the pulse ran high and but little food was taken; the use of the catheter was also necessary. There has been an offensive discharge mixed with small shreddy masses of tissue until December 24th, when all the ligatures and several long sloughs came away; now the patient is out of bed and the wound nearly healed. I have reserved making an incision in the larger of these tumors until I could do so in the presence of the society. The tumor may be roughly described as sausage-shaped, about four inches long by two thick. You see that, on section, it presents a colloid appearance, such as is commonly seen in bronchoceles. The two other tumors are more cystic, and the tracheal one, containing cretaceous matter, is probably the oldest. The dark-brown masses are pigmentary remains of former hæmorrhages. The larger of these three growths is probably what Paget would call an acce-sory thyroid tumor. 'These growths of new gland tissue may appear not only in the substance of the enlarging thyroid, but externally to and detached from the gland. Such outlying masses of thyroid gland are not rare near bronchoceles, lying by them like the little spleens one sees near the larger mass. Their history is merged in that of bronchoceles, with which they are usually associated, whether imbedded as distinct masses in the enlarged gland, or lying close to it but discontinuous.'[1]

"Microscopically[2] these tumors consist of connective-tissue capsules filled more or less with round pale cells, or pigmentary débris, crystals of cholesterine, and of oxalate of lime. To-day (December 27th) Dr. Langmaid examined the larynx, and reports as follows: 'Left chord in phonation approaches the median line; in inspiration there is decided movement outwards, although not so much as is normal. The voice is decidedly improved.' I presume that the paralysis will disappear in time, since much improvement has taken place already."[3]

Aneurism of the Aorta. — Dr. Lyman reported the case and showed the specimen. I. T., thirty-five years old, a laborer, unmarried, entered the City Hospital May 9th. The record states that his general health had been good. One year ago he had a stone fall on him, breaking three ribs and the left arm. Six months later, while using a twenty-pound sledge-hammer, his foot slipped, and he felt something give way in his chest, "saw stars," "felt dizzy," etc. The pain in the chest compelled him to relinquish work during the fortnight before his admission to the hospital. At the time of his entrance the general

[1] Bryant's Surgery, page 709.

[2] The gross appearance of a thyroid tumor may be seen in Figure 133 of Druitt's Surgery, and the microscopical appearance in Figure 133 of Billroth's Surgical Pathology.

[3] Since this case was read before the society, Dr. Langmaid, under date of January 6, 1876, reports the condition of the larynx as follows: —

Dear Doctor, — I examined the patient's throat yesterday. You will recollect that the left cord moved somewhat during forced inspiration, but was not wholly abducted when we made the last examination. Now it retreats so far as to be almost entirely concealed by the ventricular band above. The swelling of the mucous membrane about the vestibule of the larynx which existed at the first examination has entirely disappeared; in fact, the larynx is quite normal in every way. This corresponds with the respiration and breathing. This laryngeal feature of the case is quite remarkable.

Yours truly, S. W. Langmaid.

functions were well performed. Deglutition caused pain. A pulsating prominence two and one half inches in diameter was felt one and one half inches below the sternal end of the clavicle, slightly redder than the surrounding skin. The cardiac impulse was more marked at this spot than elsewhere. Sharp and almost constant pain extended from it to the shoulder-blade. The pulse in the left arm was 80, occasionally intermitting and small; in the right arm it was 78, also intermitting, but stronger than in the left. During the previous three weeks he had had so much pain in swallowing that he had gone to work without his breakfast. The cardiac impulse was two and one half inches below the nipple, the second sound was accented, the sounds at the base were clear and heard loudly over the prominence. Until the present attack he had never been troubled with cough, dyspnœa, headache, muscæ volitantes, or rheumatism; he had occasional palpitation.

May 14th. The murmur was heard with the first sound to the right of the sternum, just below the line of the nipple.

May 18th. When erect the patient complains of pain and dropping of the left shoulder. The action of the heart is perfectly quiet, steady, and regular. No murmur at the apex. At the base the sounds merge into each other and are heard loudly through the pulsating prominence.

May 25th. The patient complains of pain in the left arm and of loss of appetite.

June 8th. Prominence rather less. The patient thinks it grows smaller when he is at rest, and increases when he is moving about.

June 13th. The patient left hospital. Pain still continuing.

September 5th. Reëntered. For two weeks after leaving the hospital he was "comfortable," he was then run away with by a pair of horses, and has since had cough and dyspnœa. Pulse 96, weak. Complains of pain, especially from sternum through left shoulder. Has dry, persistent cough, and frequent attacks of dyspnœa; difficulty in swallowing solid food, none with liquids. Tumor now raised one inch above level, and five inches in diameter. No aneurismal bruit. Apex beat in normal situation. Sibilant and sonorous râles are heard on forced inspiration, and when the chest is expanded the air seems to rush in with force.

September 15th. Protrusion of tumor between second and third ribs quite tender.

September 27th. The patient complains of stinging, burning pain over the lower third of the brachial artery.

October 13th. Prolonged systolic murmur, heart pulsations irregular, impulse strong, pulse feeble. Patient sufficiently strong to do some light duty as nurse. Respiration extremely feeble over whole left lung. Tumor now extends from inner end of clavicle four inches downward; sternum elevated at it centre the tumor extending five inches to the left.

November 3d. Prominence increasing.

November 27th. Tumor now measures six and one fourth inches from above downward. During past four days the patient has expectorated a mouthful of blood at a time; he thinks in all from one half a pint to a pint.

December 25th. Cough and dyspnœa are becoming urgent, apparently from œdema of lung.

January 1st. Patient died from asphyxia.

Autopsy. — Both lungs adherent at apices, left lung infiltrated with miliary tubercles. There were many small cavities filled with caseous matter or with pus scattered through the upper part of lungs, and the bronchi contained much purulent fluid. Left lung had been pressed upon at the roots by the aneurism, and was anæmic.

Pericardium contained considerable more serum than usual. Heart healthy. About one half or three fourths of an inch above the aortic valves began the opening into an aneurism. The orifice was about three inches in diameter. The sac contained about a pint or twenty ounces by estimate, had pushed forward the cartilages of the third and fourth ribs on the left side, was partly filled with soft clots, and contained considerable fibrin.

The ribs and sternum were not eaten through. Liver and spleen slightly larger than usual, normal. The kidneys seemed slightly granular; the capsule brought away some of the cortical substance.

In the brain on right side of the longitudinal fissure just anterior to the vertex were three small calcareous plates about one sixteenth of an inch in diameter, adhering to pia mater. In or beneath the pia mater, along course of vessels, were numerous white bodies resembling Pacchionian bodies. On the anterior surface of the spinal pia mater were several calcareous plates.

MEDICAL EDUCATION.

It is a hopeful sign of the times that at least one man has been found bold enough to speak the whole truth in regard to medical education. Although the sympathy expressed over the recent efforts at reform made in this city appeared to be genuine and wide-spread, the annual announcements of this year, as we pointed out at the time, showed that no effort in this direction had been made by any of our medical schools. The same pretentious display of graduating classes, the same extravagant statement of advantages, which characterized the documents issued by them, showed, perhaps, more strikingly than anything else could, how far removed from a condition favorable to reform most of our prominent schools still continue to be.

The desire for display rather than work is indeed one of the natural tendencies of the old system, and manifests itself both in the preliminary flourish of trumpets and in the final scene at the commencement exercises in some "academy of music." Another characteristic feature is the growing fashion of attempting to crowd the two prescribed courses of lectures into the shortest possible space of time. The Long Island Medical College has the honor, we believe, of first attempting the experiment of producing a full-blown doctor after nine consecutive months of academic work. The "enviable history" of this college, says the announcement of the Kentucky School of Medicine, has induced the faculty of that school to do likewise. Curiously enough, the professors of the latter school, according to the *Louisville Medical News*, are with one or two exceptions professors also in the Louisville Medical College, which gives its instruction at the usual winter season. We also learn from the

same journal that the University of Virginia gives only a didactic course, and allows students to receive a degree at the end of nine months' work. For clinical experience it refers the student to the larger cities. Notwithstanding this discouraging condition of affairs, the article of Dr. H. C. Wood, Jr., in a recent number of *Lippincott's Magazine*, gives encouragement to hope that a class of men exists in the profession, as yet small, perhaps, but daily growing larger, which measures these evils with unprejudiced eyes, and is fully alive to the necessity of a practical revolution in our system.

The difficulties to be contended with are undoubtedly great; the customs of a century are not easily swept away, the power and patronage wielded by a few men are not to be surrendered without a struggle. "Spread-eagleism" in medicine is, we fear, still a reality, although the class of men who uphold the system simply because it is of American origin we believe to be fast dying out. It is not to be wondered at that many leaders shrink from the undertaking. The handsome salary, the old stock of lectures which have done many a year's work to crowded lecture-rooms, must give place to small classes and painstaking instruction or laboratory work. The professor gladly leaves these castles in the air for younger heads to dream about.

It is no argument in favor of the old system that many distinguished men have flourished under it. They have risen to eminence in spite of an education the requirements of which are so few that large numbers of men enjoy the privileges of a respectable title with no better qualifications than many a flourishing charlatan. The system may have been suited to the early years of the republic, but has long since outlived its era of usefulness. The rising men of the profession feel convinced of this fact, and a change will come inevitably, sooner or later. Why postpone the day? Now is certainly a most appropriate time to turn over a new leaf in our history. The experiment having been tried and proved a success, a general movement in reform might well be inaugurated in the birthplace of medical education in this country. We are surprised that the University of Pennsylvania, with its past history, with the material of which its faculty is composed, with the vigorous support lately received from a generous public, should still hesitate.

Our contemporary, the *Philadelphia Medical Times*, has been much criticised, we understand, for not supporting those schools in the interests of which it was said to have been originally published. In our opinion that journal has been their true friend. It has pointed out the only true pathway, a seemingly hard one to pursue, we doubt not, but all others lead surely to destruction.

MEDICAL NOTES.

— Another death from chloroform has recently occurred in England, the patient being under the care of Mr. Chesshire, a surgeon of Birmingham. The circumstances were such as are familiar to those who watch the records of anæsthesia in countries where ether has been superseded by chloroform. The condition of the patient offered no counter-indication to the use of chloroform; the operation (extirpation of an eyeball) was a slight one, involving

by itself no danger to life; the dose of chloroform used was small, namely, forty or fifty drops administered on a towel, and the same dose was repeated when the effects of the first proved insufficient. The first dose rendered the patient only "semi-unconscious;" the second caused "failure of the pulse," followed by death, notwithstanding attempts to restore vitality by lowering the head and practicing artificial respiration.

The Lancet mildly observes that "it is remarkable how small a quantity of chloroform proved fatal in this case; probably not more than two drachms were used altogether, and every precaution was taken in the administration of the drug, and yet death resulted." Beyond this expression of dispassionate scientific wonder at the powerful effects thus produced by chloroform, *The Lancet* makes no comment upon this case, of which the moral remains unnoticed.

— The members of the British Medical Association number 6230. Of these, 5220 have their residence in the country, and 1010 reside in the metropolitan district. The *British Medical Journal* has a circulation of 7500 copies weekly.

— The following account of the visit of Professor Depaul to Brazil, as published in the Paris *Figaro*, is contained in the *Medical Times and Gazette* of December 11, 1875. Professor Depaul has recently returned from Brazil, whither he went to attend the imperial princess, the Countess d'Eu, in her confinement. After nine years of sterile married life, the countess, the daughter of the Emperor of the Brazils, became pregnant after consulting Professor Depaul in Paris, and following the treatment he recommended; but the child was still-born. She became pregnant again, and this time the emperor solicited Depaul to come out himself and conduct the delivery, and he at last was persuaded to go. On his arrival at Rio Janeiro he met with a most frigid reception from almost every one except the immediate attendants of the princess. The newspapers were against him, and the native physicians gave him the cold shoulder. Although he personally visited the medical men connected with the court, on the day of the accouchement he found himself at the bedside of the princess alone and without assistance. Only the Count d'Eu was unwearied in his devoted attention to his wife. After a thirteen hours' labor, which had to be ended with the forceps, a baby weighing twelve pounds (livres) was at last brought into the world; but for an hour it was doubtful whether it would survive, and it was only after artificial respiration and other methods had been vigorously tried that it gave signs of life. It is now a healthy child. The most curious and amusing feature about Dr. Depaul's visit was the revulsion of public opinion in his favor when the successful result of his visit became known. The papers praised him, his *confrères* congratulated him, and the academies and scientific bodies sent him crowns and addresses; he was invited to banquets, and was *fêted* in a wonderful way. "After the event," says Depaul, "my room was never empty from morning till night, and I was obliged, in spite of a determination to the contrary, to give consultations. In less than eight days fifteen thousand francs' worth of piasters were laid on my table as fees." Professor Depaul has certainly good reason to be satisfied with his trip across the ocean. *Non cuivis homini continget adire Brazilum!*

— In view of the high temperature which has prevailed during the holiday season, the following upon "seasonable" weather, which we take from *The British Medical Journal* of December 18, 1875, is of interest. Until the stubborn figures of the registrar-general rendered it no longer tenable, it was a favorite theory that seasonable weather was good for mankind. By seasonable weather was meant hot summers and cold winters. It must be acknowledged that it is a somewhat unwelcome discovery that cold, wet summers and warm, muggy winters are not only innocuous, but actually favorable to the public health; whereas fine, hot summers and bracing, cold winters invariably produce excessive rates of mortality. In England and Wales the excess of deaths during a hot summer, as compared with a cold one, is to be numbered by tens of thousands, consisting for the most part of infants. The excess of deaths due to a long and severe winter, like that of 1874–75, reached a far more formidable total, and is shared, though unequally, by persons of all ages. The effect of cold upon mortality increases with the ages of those exposed to its influence, or, in other words, the power of resistance to cold declines with age. Though the conclusion is inevitable that, as the thermometer falls below a certain point, so surely will the rate of mortality within a brief period show a corresponding increase, we at present know neither the exact point at which the temperature becomes too low for human health, nor the exact period which elapses between the incidence of the low temperature and the commencement of its effects upon the death-rate.

— Some practical remarks concerning the use of atropia in cases of opium poisoning are contained in a lecture on the treatment of opium poisoning by Prof. H. C. Wood, published in the *Philadelphia Medical Times* of December 25, 1875.

Dr. Wood says that atropia should be employed not as an antidote, but as a remedy when the respiration is failing, precisely as alcohol is used when the circulation is failing. It is a powerful stimulant to the respiratory centres. If it be administered in small doses when the breathing is very slow, the respirations are increased very remarkably in frequency, and the carbonic acid being thrown off from the blood the patient arouses, restored to consciousness not by the direct but by the indirect action of the remedy upon the nerve-centres. Use the alkaloid hypodermically, and in very small repeated doses. Belladonna poisoning has often been produced by the improper use of atropia. It is commonly stated that the pupils should be the guide, the quantity given being regulated by the amount of the dilatation produced. It is not proper to rely solely or chiefly on the state of the pupils. Inasmuch is the atropia is given to stimulate the respiration, its influence on that function should direct us in its administration. Suppose we had a patient who was in the last stage of opium-poisoning, with slow respirations, — down to four or five in the minute, — and had exhibited one thirtieth of a grain of atropia hypodermically. If in fifteen minutes or half an hour the respirations had risen to ten, we should know that the desired end was being accomplished, and as long as the breathing continued to increase in rapidity we should give no more of the remedy; but if the respirations began to grow less frequent, it would be proper to exhibit the one sixtieth of a grain, and repeat it every half-hour until the breath-

ing showed the effect, or the dilatation of the pupil warned us that we were approaching the danger-point. The golden rule is, *Give the least possible quantity that will produce the required effect.*

BOSTON CITY HOSPITAL.

SURGICAL CLINIC.

BY GEORGE W. GAY, M. D.

Compound and Comminuted Fracture of the Tibia; Recovery. (*Service of Dr. Gay.*) — Michael D., aged thirty, a temperate man, was injured September 27, 1875, by a cask of "raw hides" falling upon his left leg, producing a severe compound fracture of the tibia. He was brought immediately to the hospital. About three inches above the internal malleolus was a wound an inch long, communicating with the broken tibia. The tissues were severely bruised. A probe passed downwards to the sole of the foot and upwards to the middle of the leg. The tibia was shattered into several fragments. The hæmorrhage was moderate, and the tibial vessels were apparently uninjured.

On account of the extensive comminution of the tibia in the vicinity of the ankle-joint, and great laceration of the soft parts, amputation was advised by the attending surgeons in consultation. The patient refused his consent to an amputation, preferring to take his chances with conservative treatment.

The wound was then enlarged, and the looser fragments of bone were removed. Only the outer wall of the shaft of the tibia was left in its place, for about four inches of its lower portion. The ankle-joint was probably not opened, although the fracture must have extended close to it. The fibula was denuded, but not broken.

The leg was allowed to rest in a fracture-box, with just padding enough to keep it steady. Cold lotions were applied for a few days until the inflammation became developed, when an opiate lotion was substituted.

Ten days after the patient's entrance an abscess formed over the fibula which required an incision. This gave a free channel through the leg, and it was thoroughly syringed out three times a day with chlorinated soda wash.

For a few days the patient was chilly and feverish; but with this exception he went on well and made a good recovery. The wounds contracted, the large gap in the tibia became filled, and the leg was firm and strong at the end of about six weeks. There was a little necrosis at one time, but it gave no trouble. The wounds were entirely healed in eleven weeks, and the man could bear considerable weight upon the leg. There was no deformity, and as the foot had been kept at right angles to the leg during the treatment, he had no trouble in putting it under him and using it to the best advantage immediately. There was necessarily some impairment of motion in the ankle-joint, which will probably disappear in time.

As a rule, compound fractures with much comminution of the bone have done better at the City Hospital when treated by amputation rather than by conservative measures; but as this man refused amputation he was treated in

the ordinary, common-sense manner, and got well. We ascribe his recovery principally to his healthy constitution and to the favorable hygienic condition of the hospital. Whether the leg will ever get strong enough to allow the patient to follow his business as a laborer remains to be seen.

Compound Fracture of the Os Calcis, and Simple Fracture of the Leg; Recovery. (*Service of Dr. Gay.*) — A. B., a carpenter, forty-one years of age, was admitted to the hospital October 20, 1875. He had dropped or jumped from a falling staging, a distance of about thirty feet. He first struck upon his feet, and then fell to the ground. There was found to be a compound fracture of the os calcis of the left foot. A small opening on the inner side of the foot allowed the probe to pass in between the fragments. The soft tissues in the vicinity of the fracture were somewhat bruised, but there was very little hæmorrhage. The right tibia was broken at the junction of the middle and the upper third, and the fibula at the junction of the middle and the lower third. The patient also had several contusions upon the head.

Each leg was placed in a fracture-box, and evaporating lotions were applied. The wound on the foot healed without any suppuration whatever. The right leg became enormously swollen, and covered with large blebs; but fortunately the fragments did not protrude through the skin. The patient was delirious for a few days, and made strong efforts to get out of bed. He also had a small bed-sore. With these exceptions he went on very favorably. As soon as the swelling in the leg subsided, and the skin had become sound and some degree of union had taken place, a dextrine bandage was applied to each leg. This allowed the patient to turn in any direction while in bed, and also to sit up a part of the time. He was discharged in eight weeks. He could then walk very well with the aid of crutches. The fractures were firmly united without deformity, and there was every prospect of a complete recovery.

ABOUT CORONERS.

Messrs. Editors, — Would it not be well to make arrangements for petitioning the legislature to make a review of the laws about coroners' inquests and to effect a change, if found expedient? An article in your journal led me to look into the law upon the subject, and into the names of those who hold the office in this County of Suffolk. I find in the directory for 1875 the names of two special coroners, so called, and of twenty-eight coroners in the city proper, one in Jamaica Plain, one in Brighton, two in Charlestown, three in Chelsea, and one in Neponset. Since the publication of the last directory, a number of others have been appointed. To every member of the medical profession who has been frequently called before coroners' juries the action of some of these officers has seemed absurd. The juries called by coroners are frequently made up of the same men, oftentimes ignorant men, and very commonly indeed the conversation carried on in the presence of witnesses, by the jurymen before coming to order, is not what it should be. Men have been appointed to the office who have been charged with criminal acts. Some of them in their decisions have been guilty of the absurdity of deciding upon the

cause of death in cases where no examination of the dead bodies had been made, other than "viewing." "Apoplexy" and "disease of the heart" have been frequently decided upon, when an examination of the body might have shown murder or suicide to have been the cause. In one case within a few months the papers reported "*nearly an ounce of chloroform* as having been taken into the stomach, from the effects of which death followed;" and to this is added the absurd statement that "there was no evidence tending to show that suicide was intended or that any irregularity existed anywhere in connection with the case." The absurdity of such verdicts is evident to any one who has tried to swallow even the small quantity of five drops of chloroform, no matter how carefully mixed with other articles.

Now, Messrs. Editors, in what way can the laws concerning coroners be brought up for examination by the legislature? Would a petition from one of our district societies be heeded? or one from the council? How should the subject be approached? Would it be of any use to move in the matter?

Yours respectfully. ONE WHO HAS BEEN A WITNESS.

THE POMEROY CASE AGAIN.

MESSRS. EDITORS, — I was unable to take part in the discussion of Dr. Folsom's interesting paper on the Pomeroy case, read before the Suffolk District Medical Society, and published in the JOURNAL for December 30th. I therefore ask for space to consider one or two points in it. Of the five forms of mental disease mentioned as possibly existing, I had never heard of delusional insanity in this connection, and I think no good evidence of epileptiform insanity has been advanced. Dr. Folsom agrees with all the physicians who have expressed an opinion that Pomeroy is weak-minded, and he says he uses the term as "synonymous with moral imbecility," so that on this third form everybody is agreed.

Now, as to the possibility of the existence, two and four years ago, of attacks of moral *insanity*. Dr. Folsom says that Pomeroy does not deny that he knows the acts he is said to have committed were wrong, as if this were the proper test. This test of *knowing*, is one applied to the intellect, which is presumed to be sound, and not to the moral sense, which is supposed to be at fault. The question is, Did he at the time of his acts *feel* that he was doing wrong, and was he able to resist the impulse which possessed him? and also, Did this impulse arise from a healthy or from a disordered state of the brain?

These are delicate questions and difficult of solution, but considering the existence of a certain degree of moral imbecility, and the presence of the age of puberty, when sensual images and impulses of all kinds tyrannize over the brain, Dr. Folsom would probably agree with Maudsley that this "constitutes a frame of mind favorable to the action of other causes of mental derangement." Suppose, then, that a cause existed in the habit of excessive self-abuse, are not all the circumstances propitious for an outbreak of moral insanity, to be shown, not in intellectual disorder, but in vicious or outrageous acts? And when at this time acts of rare and unnatural cruelty occur, cul-

minating in murder, is there not room for a strong suspicion that such an outbreak did take place? Neither is premeditation nor self-control under observation, as cited by Dr. Folsom, an argument against this suspicion, for are not most suicides arising from simple melancholia, which is the most common form of moral insanity, deliberately planned and executed?

Dr. Folsom makes too little account, in my opinion, of the fifth form, insanity from masturbation. As the sole cause of insanity, self-abuse is no doubt rare; but as an exciting cause, and an aggravating concomitant, it is quite common. He describes merely the symptoms of dementia from this cause, and passes over entirely that form of mania which I referred to in my paper published in the transactions of the Suffolk District Medical Society in the JOURNAL for November 4th. Perhaps he has never seen this form of disease, as I have met with only a score or so of cases, out of some three or four thousand insane patients examined. Maudsley, however, whom I quote only because Dr. Folsom seems to rely on his authority, says,[1] "The habit of self-abuse notably gives rise to a particular and disagreeable form of insanity characterized by intense self-feeling and conceit, by extreme perversion of feeling and corresponding derangements of thought, in the earlier stages; and later by failure of intelligence, nocturnal hallucinations, and suicidal or homicidal propensities."

In regard to Pomeroy's responsibility, I have nothing to say except that in view of the above facts I would give him the benefit of an honest doubt, and imprison him for life, rather than hang him. Dr. Folsom it seems, would hang him, although he says, "I do not think he ever meant to murder."

Will you please print the following case in addition to those I presented in my paper before mentioned?

"Under the heading of a 'Psychological Riddle,' the *Neue Freie Presse* of Vienna reports a horrible affair which recently occurred near the village of Trighs, in the District of Dobersberg. The story is as follows: —

"'A little boy twelve years old was playing in a field with two little girls, when one of the latter, named Antonia Durneder, lay down and went to sleep. The boy, whose name was Johann Fraisl, went up to the child and contemplated her for some time, during which a hideous thought arose in his mind. He carefully collected the best materials at hand for a large bonfire, arranged these over the body of the sleeper, and set fire to the structure. The flames immediately rose high above the unfortunate child, and when the other little girl saw the awful sight, she screamed to the young murderer to put out the fire. But Johann took pleasure in the spectacle, and replied, "No, let Antonia burn; she will go to the angels." The wind soon scattered the ashes of the burned child, and her despairing parents found nothing remaining of her but some calcined bones. The boy is charged with the crime before the District Court of Dobersberg. Meantime, the general feeling on the subject is one of utter bewilderment, as there is no evidence of the existence on the part of the little miscreant of any hatred or ill-will toward his playmate, and he can give no plausible ground whatever for his horrible conduct.'"

THEO. W. FISHER.

[1] Physiology and Pathology of Mind, page 248.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING JAN. 1, 1876.

	Estimated Population.	Total Mortality for the Week.	Annual Death-Rate per 1000 during Week
New York	1,060,000	556	27
Philadelphia	800,000	362	24
Brooklyn	500,000	254	26
Chicago	400,000	143	18
Boston	342,000	180	27
Cincinnati	260,000		
Providence	100,700	46	24
Worcester	50,000	21	22
Lowell	50,000	15	16
Cambridge . . .	48,000	24	26
Fall River	45,000	17	19
Lawrence	35,000	13	19
Lynn	33,000	12	19
Springfield	31,000	9	15
Salem	26,000	10	20

Normal Death-Rate, 17 per 1000.

Messrs. Editors, — There should be a new item or clause in our rules of professional etiquette, for the benefit of certain men in office. To explain: a short time ago it became necessary to send a patient of mine, who lived near my house, to the insane asylum. His wife called on me on her way to Pemberton Square, and I arranged to be at home at about the time when I thought she would return. She was told by the doctor that it was necessary for him to go to the hospital at once, and that he would go right up and examine him, taking another doctor along, as it was necessary to have two signatures. The wife asked if she could not have her family physician for one of the doctors, as he was near by, and she would call and tell him on her way home. She was told that there was no need of that, that there might be some delay, and there was a doctor right there who could go as well as not. The lady passed by my door and did not call, and my patient was sent away under the signatures of two strangers. The amendment wanted is as follows: "Though some physicians have rights, others are not thereby without theirs; and though some have a little learning, others are not of necessity fools." M. M. S. S.

Boston Society for Medical Observation. — A regular meeting of the society will be held on Monday evening next, at eight o'clock, at the hall in Temple Place. Reader, Dr. Bolles. Subject, Broken Skulls. Edward Wigglesworth, Jr., *Secretary.*

Erratum. — In the Journal for December 30, page 774, last line, for "intense" read *internal.*

Books and Pamphlets Received. — Extra-Uterine Pregnancy. By John S. Parry, M. D. Philadelphia: Henry C. Lea. 1876.

A Treatise on the Diseases of Infancy and Childhood. By J. Lewis Smith, M. D. Third Edition. Philadelphia: Henry C. Lea. 1876.

Transactions of the Michigan State Medical Society for 1875. Lansing. 1875.

Aids to Anatomy. By George Brown, M. R. C. S. London: Baillière, Tindall, and Cox. 1876. (From the publishers.)

Transactions of the American Neurological Association for 1875. Volume I. New York: S. W. Green. 1875.